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TRANSMITTAL LETTER
(General - Patent Pending)

Docket No.
LEAP:135US

In Re Application Of: **Russell Bonaventura et al.**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/811,345	March 26, 2004	Joshua L. Pritchett	24041	2872	1573

Title: **HEAT SINK ASSEMBLY FOR A MICROSCOPE**

COMMISSIONER FOR PATENTS:

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Dated: **January 12, 2007**

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Attorney Docket No.: LEAP:135US
U.S. Patent Application No.: 10/811,345
Date: January 12, 2007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

U.S. Patent Application No.: 10/811,345

Confirmation No.: 1573

Applicant(s): BONAVENTURA, Russell; HARRISON, Paul M.; NORTHEM, Kenneth M.;
and PARKS, Scott, W.

For: HEAT SINK ASSEMBLY FOR A MICROSCOPE

Examiner: Joshua L. PRITCHETT

Filed: March 26, 2004

TC/Art Unit: 2872

Docket No.: LEAP:135US

Customer No.: 24041

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I certify that this Reply Brief is being deposited on January 12, 2007 with the U.S. Postal Service as first class mail under 37 C.F.R. §1.8 and is addressed to the Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450.

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REPLY BRIEF UNDER 37 C.F.R. § 41.41

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Honorable Sir:

This Reply Brief is in response to the Examiner's Answer dated November 14, 2006 for the above referenced application.

A check in the amount of \$500.00 is enclosed for a Large Entity Filing Fee.

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Attorney Docket No. LEAP:135US
U.S. Patent Application No. 10/811,345
Reply Brief
Date: January 12, 2006

STATUS OF CLAIMS

The application originally contained 50 claims.

Claims 1 and 35 have been canceled.

Claims 51 and 52 were added.

Claims 2-34 and 36-52 stand as finally rejected.

Claims 2-34 and 36-52 are the subject of this Appeal.

Attorney Docket No. LEAP:135US
U.S. Patent Application No. 10/811,345
Reply Brief
Date: January 12, 2006

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether Claims 2-12, 14-24, 26-34, 36-43, and 46-52 are non-obvious under 35 U.S.C. §103(a) to a person having ordinary skill in the art at the time the invention was made and therefore patentable over U.S. Patent No. 5,295,052 (Chin) in view of U.S. Patent No. 5,076,660 (Messinger)?

2. Whether Claims 13, 25, 44, and 45 are non-obvious under 35 U.S.C. §103(a) to a person having ordinary skill in the art at the time the invention was made and therefore patentable over U.S. Patent No. 5,295,052 (Chin) in view of U.S. Patent No. 5,076,660 (Messinger) as applied to Claims 5, 17, and 36 above, and further in view of U.S. Patent No. 6,698,200 (Rauen)?

ARGUMENT

1. Whether Claims 2-12, 14-24, 26-34, 36-43, and 46-50 are non-obvious under 35 U.S.C. §103(a) to a person having ordinary skill in the art at the time the invention was made and therefore patentable over U.S. Patent No. 5,295,052 (Chin) in view of U.S. Patent No. 5,076,660 (Messinger)?

A) Summary of the Rejection:

The Examiner rejected Claims 2-12, 14-24, 26-34, 36-43, and 46-52 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 5,295,052 (Chin) in view of U.S. Patent No. 5,076,660 (Messinger).

1) Regarding independent Claim 4, the Examiner asserted in the Office Action dated June 14, 2006, hereafter referred to as the Office Action:

“Regarding claim 4, Chin teaches an air inlet (112); an illumination source (34); a heat sink assembly (80) including a lens (col. 1 lines 40-50) secured to the heat sink assembly and the heat sink arranged to protect the illumination source from direct physical intrusion (Fig. 2) and a plurality of fins (Fig. 5) formed at the heat sink assembly and operatively arranged to conduct heat away from the illumination source and to transfer the heat to air passing by or over the assembly (col. 2 lines 55-60). The illumination source in Chin is protected from direct physical intrusion from all directions from outside the microscope because a person could not stick an object into the system in a straight line and contact the illumination source (Fig. 2). Chin lacks specific reference to a microscope. Chin does state that the device is used for medical/surgical applications (abstract). It is extremely well known in the art to use microscopes in combination with light sources for medical/surgical applications. Official Notice is taken. Chin further lacks reference to a baffle directing the airflow. Messinger teaches the heat sink assembly (abstract) comprising a baffle (15, 19 and partitions shown in Fig. 1) located proximate the air inlet (Fig. 1) and operative arranged to deflect air entering via the inlet and to occlude the emanation of light form (sic) the source through the air inlet (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Chin light source used in combination with a microscope as suggested by Chin for the purpose of allowing surgery to be performed on parts of the body too small to be easily observed with the naked eye. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Chin invention include the

baffles of Messinger for the purpose of greater cooling efficiency of the heat sink assembly.”

Claims 2, 3, and 5-12, and 14 depend from Claim 4, therefore, in the interest of brevity, Appellants have not presented assertions made by the Examiner regarding these dependent claims.

2) Regarding independent Claims 15, 30, 51, and 52 the Examiner asserted:

“Regarding claims 15, 16, 26, 30 and 47-52, Chin teaches an illumination source (34); a heat sink assembly (80) surrounding the illumination source (Fig. 5) and a plurality of fins (Fig. 5) formed at the heat sink assembly and operatively arranged to conduct heat away from the illumination source and to transfer the heat to air passing by or over the assembly (col. 2 lines 55-60). Chin lacks specific reference to a microscope. Chin does state that the device is used for medical/surgical applications (abstract). It is extremely well known in the art to use microscopes in combination with light sources for medical/surgical applications. Official Notice is taken. Chin further lacks reference to the use of baffles. Messinger teaches the heat sink assembly (abstract) comprising a fixed baffle (19 and partitions shown in Fig. 1) located proximate the air inlet (Fig. 1) and operative arranged to deflect air entering via the inlet and to occlude the emanation of light from (sic) the source through the air inlet (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Chin invention include the baffles of Messinger for the purpose of greater cooling efficiency of the heat sink assembly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Chin light source used in combination with a microscope as suggested by Chin for the purpose of allowing surgery to be performed on parts of the body too small to be easily observed with the naked eye.”

Claims 16-24 and 26-29 depend from Claim 15, therefore, in the interest of brevity, Appellants have not presented assertions made by the Examiner regarding these dependent claims. Claims 31-34, 36-43, and 44-50 depend from Claim 30, therefore, in the interest of brevity, Appellants have not presented assertions made by the Examiner regarding these dependent claims.

B) Response to Arguments in Examiner's Answer

1) Meaning of "comprising" in the claims

The Examiner stated: 'The open language use of the term "comprising" in the claim language allows for other elements to be present in the prior art and still satisfy the claimed limitations.' Appellants disagree. MPEP 2111.03 Transitional Phrases states (bold emphasis added): "The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and **does not exclude additional, unrecited elements or method steps**. See, e.g., *Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004) ("like the term 'comprising,' the terms 'containing' and 'mixture' are open-ended."); *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003) ("The transition 'comprising' in a method claim indicates that the claim is open-ended and **allows for additional steps**."); *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997)."

Thus, the term 'comprising' is related to claim structure, not the possible applicability of prior art to recited elements in a claim. As the bolded sections particularly point out, 'comprising' is to be viewed with respect to possible additional unrecited elements or method steps and does not broaden the range of prior art that may read on recited claim limitations. For example, it appears that the Examiner is attempting to assert that the term "comprising" in Claim 4 enables the Examiner to apply the passageways in Messinger to the recited limitations in the claim. Specifically, that the passageways in Messinger read on the baffle recited in Claim 4. However, Claim 4 does not recite a passageway. Thus, there is no basis for applying the passageways to the claim limitations and such application is not permissible.

2) The Examiner is reading limitations from the specification into the claims

The Examiner also asserted: 'The claim language states, "said baffle is **operatively arranged** to deflect air entering said microscope via said inlet and to occlude emanation of light from said illumination source through said air inlet." (Emphasis added). A baffle in and of itself will not occlude light; the baffle must be arranged in a manner complimented by the location of the light source and the location of the air inlet to occlude the light. Looking at applicant's Fig. 5,

the baffles (57) must be positioned directly above the air inlet (58) and directly below the light source (50 shown in Fig. 7a) to occlude light.”

The Examiner’s arguments regarding the baffle recited in the claims and the baffles shown in Messinger do not change the fundamental fact that the baffles in Messinger do not occlude light. In the Appeal Brief, Appellants showed that Messinger’s baffles do not occlude the emanation of light from the air inlet. The Examiner has admitted this fact: “Applicant argues without the passageway there would be no attenuation of light bypassing the baffles. The examiner agrees...” (excerpt from ‘Response to Arguments’ in Examiner’s Answer). Messinger teaches that the baffles are for purposes of airflow (Abstract; col. 1, lines 64-66; and col. 2, lines 11-13) and is silent regarding light occlusion.

“Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993) (Claims to a superconducting magnet which generates a "uniform magnetic field" were not limited to the degree of magnetic field uniformity required for Nuclear Magnetic Resonance (NMR) imaging. Although the specification disclosed that the claimed magnet may be used in an NMR apparatus, the claims were not so limited.); *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571-72, 7 USPQ2d 1057, 1064-1065 (Fed. Cir.), *cert. denied*, 488 U.S. 892 (1988) (Various limitations on which appellant relied were not stated in the claims; the specification did not provide evidence indicating these limitations must be read into the claims to give meaning to the disputed terms.); *Ex parte McCullough*, 7 USPQ2d 1889, 1891 (Bd. Pat. App. & Inter. 1987) (Claimed electrode was rejected as obvious despite assertions that electrode functions differently than would be expected when used in nonaqueous battery since "although the demonstrated results may be germane to the patentability of a battery containing appellant's electrode, they are not germane to the patentability of the invention claimed on appeal.")." (MPEP 2145 VI).

Assuming *arguendo* that Fig. 5 taught, suggested, or motivated the limitations asserted by the Examiner, which is not the case and which limitations are not recited in the claims, these limitations cannot be read into the claims as is clearly shown by the above excerpt from the

MPEP. That is, limitations regarding the relative positions of the light source, the baffle, and the air inlet cannot be read into the claims. There are no claim limitations regarding how the baffle is disposed with respect to the light source, other than that the baffle occludes light, and the only claim limitation with respect to the air inlet is that the baffle is 'proximate' the air inlet. Thus, the Examiner's arguments regarding Fig. 5 are moot.

Further, the baffle does occlude light in and of itself. The claims do not recite any other feature of the microscope performing this function. The specification does not teach any other feature of the microscope performing this function. As noted above, the claims do not recite the positional limitations suggested by the Examiner. The baffle is described in the specification and shown in the figures as being proximate the air inlet without referring to the necessity of a complimentary relationship with the light source or the air inlet. The specification does not teach, suggest, or motivate a limitation regarding such complimentary relationships. Even if the specification did teach, suggest, or motivate such a limitation, the limitation cannot be read into the claims per MPEP2145 VI.

The Examiner postulates a hypothetical position for the light source. Appellants fail to see the relevance of such a postulation. The claims do not recite such a position and there is no teaching, suggestion, or motivation to move the light source in the specification. Even if the specification did teach, suggest, or motivate such a limitation, the limitation cannot be read into the claims per MPEP2145 VI.

3) Meaning of "operatively arranged" in the claims

The Examiner stated: "If the light source were offset to the side of the baffles the baffles would not occlude the light from the light source from exiting through the air inlets, hence the use of the phrase, "operatively arranged," in the claim language.'

Appellants disagree with the Examiner's interpretation of the term "operatively arranged." The term "operatively arranged" has been used by Appellants as an alternative to functional language in the claims, for example, in Claim 4. For example, rather than reciting "said baffle deflects air...." The claims recite "said baffle is operatively arranged to deflect air...." Alternately stated, "operatively arranged" merely means placed to do the function

recited. There is no basis for the Examiner's assertion that 'operatively arranged' enables limitations that are not recited in the claims and are based on speculative placements not taught, suggested, or motivated anywhere in the instant application, to be read into the claims. Alternately stated, the Examiner has cited a position of the light source not recited, taught, suggested, or motivated by the instant application as the basis for creating a new and otherwise unsubstantiated definition for an otherwise well-known and well-defined term.

The Examiner further stated: 'Similarly the Messinger reference uses the location of the air inlet and the location of the light source to compliment the location of the baffles. The baffles of Messinger are operatively arranged to prevent light from enter the passage way and traveling up the passageway to exit out of the air inlet. Thus the claim language is satisfied.

Applicant argues without the passageway there would be no attenuation of light bypassing the baffles. The examiner agrees however, as stated above, the baffles are "operatively arranged" to occlude the light. The arrangement must take into account the location of the other elements within the device such as the location of the light source and the location of the air inlet."

In the Appeal Brief, Appellants showed that Messinger's baffles do not occlude the emanation of light from the air inlet. The Examiner has admitted that the baffles do not occlude light. Messinger teaches that the baffles are for purposes of airflow (Abstract; col. 1, lines 64-66; and col. 2, lines 11-13) and is silent regarding light occlusion. Any light occlusion occurring in Messinger is performed by the passageways.

Claim 4 does not recite the location of the light source and the air inlet and does not recite any accounting of these locations (other than the proximity of the baffle to the air inlet). Further, there is no reason that the locations "must" be accounted for. Appellants have shown that the Examiner has misconstrued the term "operatively arranged." Therefore, there is no basis for the Examiner's sweeping generalization regarding the term "operatively arranged." Specifically, the Examiner cannot assign functions to the baffles in Messinger which the baffles clearly do not perform. The claims do not recite limitations regarding complimentary locations for an air inlet, a light source, or a baffle. The specification does not teach such complimentary locations and

assuming *arguendo* that the specification taught such limitations; limitations in the specifications cannot be read into the claims as noted *supra*.

Even if the Examiner's misuse of the term "operatively arranged" is applied to Claim 4 and Messinger, Messinger still fails to teach, suggest, or motivate a baffle occluding light, as is recited in Claim 4. That is, no matter how the claim limitations are construed, it does not change the fact that Messinger's baffles fail to occlude light.

The Examiner stated: 'Applicant argues claim 4 does not recite a combination of a baffle and a passageway to occlude light. The examiner agrees, however, as stated above, the claim language uses the term "comprising" which allows for elements not specifically claimed to be present in the prior art and still satisfy the claimed limitations.'

The Examiner admits that the baffles in Messinger do not occlude light. That is, that the passageways perform any occluding that may occur at the inlet. As shown *supra*, the transitional phrase 'comprising' is interpreted with respect to the possible addition of further claim limitations and is utterly irrelevant to the applicability of prior art to recited claim limitations. That is, the phrase "comprising" does not enable the Examiner to apply prior art (a passageway) which has not been recited in the claims and is completely different than the elements recited in the claims against such recited elements.

The Examiner stated: "Applicant argues terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation. The current claim preamble states "A microscope." Such a preamble imparts no structure to the claimed invention and therefore does not fall within the scope of the Coming Glass Works case."

"(The determination of whether preamble recitations are structural limitations can be resolved only on review of the entirety of the application **"to gain an understanding of what the inventors actually invented and intended to encompass by the claim."**); *Pac-Tec Inc. v. Amerace Corp.*, 903 F.2d 796, 801, 14 USPQ2d 1871, 1876 (Fed. Cir. 1990) (determining that preamble language that constitutes a structural limitation is actually part of the claimed invention). See also *In re Stencel*, 828 F.2d 751, 4 USPQ2d 1071 (Fed. Cir. 1987). (The claim at issue was directed to a driver for setting a joint of a threaded collar*>< however>< the body of

the claim did not directly include the structure of the collar as part of the claimed article. The examiner did not consider the preamble, which did set forth the structure of the collar, as limiting the claim. The court found that the collar structure could not be ignored. While the claim was not directly limited to the collar, the collar structure recited in the preamble did limit the structure of the driver. "[T]he framework - the teachings of the prior art - against which patentability is measured is not all drivers broadly, but drivers suitable for use in combination with this collar, for the claims are so limited." *Id.* at 1073, 828 F.2d at 754.)." (Emphasis in bold added).

Appellants maintain that the preamble is relevant. The light source, air inlet, and baffle are meant to be considered in the context of a microscope. That is, the fact that the claimed invention is a microscope is necessary to understand what the inventors actually invented and intended to encompass by the claim. For example, the invention is not relevant to or intended to encompass applications such as fixtures for high intensity theater lighting, which also have light sources, heat sinks, baffles, and air inlets, but deal with scales and intensities magnitudes beyond those associated with a microscope.

The Examiner stated: "Applicant argues Messinger is not analogous art to the present invention. The substantive claim limitations of the current invention are directed to a heat sink assembly. The Messinger reference teaches a heat sink assembly. Both the Messinger reference and the current application are directed to solving the problem of cooling a light source through the use of air passing across the surface of the light source to remove heat through convective heat transfer."

The problem of cooling a light source with air flow is an enormously broad field and includes a wide range of devices and applications have very different sizes, scales, and purposes. For example, a 10,000W halogen theater light generating enormous amounts of heat is addressed under the broad umbrella of "...cooling a light source through the use of air passing across the surface of the light source to remove heat through convective heat transfer." Therefore, Appellants contend that the problem proposed by the Examiner is overly broad and does not operate to make Messinger analogous to the claimed invention.

The Examiner stated: "Applicant argues the Chin reference has no teaching regarding surgery too small to be easily observed with the naked eye. Chin specifically states the device may be used in an endoscope (col. 1 line 7) and suggests the use of a microscope since a microscope is a "medical/surgical application" (abstract line 1)."

An endoscope has nothing to do with surgery too small to be easily observed by the naked eye. Instead, an endoscope is used to view areas that are normally inaccessible. For example, the Merriam-Webster On-Line Dictionary defines endoscope as: "an illuminated usually fiber-optic flexible or rigid tubular instrument *for visualizing the interior of a hollow organ or part* (as the bladder or esophagus) for diagnostic or therapeutic purposes that typically has one or more channels to enable passage of instruments (as forceps or scissors)." (emphasis added).

The Examiner's assertion that Chin's reference to a "medical/surgical application" is applicable to a microscope is much too broad to be useful or relevant. For example, the vast majority of medical/surgical operations do not use microscopes and the vast majority of microscope applications do not involve medical/surgical procedures.

The Examiner stated: "Applicant argues Chin teaches away from the use of baffles, which would restrict airflow, such as the Messinger baffles. The examiner does not agree with the applicant's classification of the Messinger baffles as restrictive to air flow. The fan (Chin 112; Fig. 2) at the air inlet will control the volumetric flow of air. The baffles will act to decrease the space for the air to flow within the heat sink assembly leading to a higher velocity of airflow across the light source."

The Examiner has admitted *supra* that the baffles in Messinger do not occlude light and the above excerpt reinforces this admission. For example, Messinger teaches in the Abstract and in the Written Description (col. 1, lines 64-66 and col. 2, lines 11-13) that baffles are added to optimize air flow. Messinger has no teaching, suggestion, or motivation to use baffles to occlude light.

The Examiner further stated: "For example, consider the same volume of water traveling through a pipe of large diameter and a pipe of small diameter. The water traveling through the

pipe of small diameter will have a higher velocity due to the decreased area of pipe cross section. Baffles as taught by Messinger are used to create a directed high velocity airflow, which would cause cool air to be in closer contact with the surface of the light source and rapidly force the hot air away from the light source and out of the heat sink. The transfer rate of heat energy is driven by the temperature difference between the two mediums, which are transferring heat. Therefore, it makes sense to have the hot air that has already absorbed heat from the light source to be removed from contact with the light source and replaced with cooler air as quickly as possible to effect as much heat transfer from the surface of the light source as possible. As stated above the baffles of Messinger achieve this goal by decreasing the volume through which air can flow and directing the air to the surface of the light source (as indicated by the arrows shown in Fig. 1 of Messinger. The purpose of the Chin reference is to cool the light source using airflow, thus any means, which aids in the cooling of the light source by accelerating and directing the airflow would benefit the Chin reference.”

The Examiner hinges the argument to modify Chin according to Messinger on the motivation to replace air around the light source in Chin as quickly as possible. That is, to replace the volume of air around the light source as quickly as possible. The Examiner used the analogy of the pipe sizes to explain the alleged effects that Messinger’s baffles may have on Chin. However, it is critical to note that each pipe passes the same volume of water in a same time period. Therefore, assuming *arguendo* that the unmodified Chin is analogous to the case of the big pipe and Chin as modified by Messinger is analogous to the smaller pipe, the unmodified and modified Chin will move the same volume of air in a same time period. That is, the modified Chin cannot and does not replace the volume of air around the light source any quicker than the unmodified Chin.

Further, it is not clear that putting baffles in Chin would serve the same function as is purported for Messinger. For example, Chin has a different shape and configuration than Messinger and it appears that any baffles in Chin would be in different relative parts of the airstreams path than the baffles in Messinger.

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CONCLUSION

For the reasons set forth above, Appellants respectfully submit that Claims 2-12, 14-24, 26-34, 36-43, and 46-52 are non-obvious under 35 U.S.C. §103(a) to a person having ordinary skill in the art at the time the invention was made and therefore patentable over U.S. Patent No. 5,295,052 (Chin) in view of U.S. Patent No. 5,076,660 (Messinger).

For the reasons set forth above, Appellants respectfully submit that Claims 13, 25, 44, and 45 are non-obvious under 35 U.S.C. §103(a) to a person having ordinary skill in the art at the time the invention was made and therefore patentable over U.S. Patent No. 5,295,052 (Chin) in view of U.S. Patent No. 5,076,660 (Messinger) as applied to Claims 5, 17, and 36 above, and further in view of U.S. Patent No. 6,698,200 (Rauen).

Accordingly, Appellants pray that this Honorable Board will reverse the Primary Examiner's rejection of Claims 2-34 and 36-52.

Respectfully submitted,

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